


eComment. The origin of the right vertebral artery?

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We have read with interest the article from Urbanski and colleagues [1]. With the advent of precise non-invasive imaging techniques, such as computed tomography scan and magnetic resonance angiography, arch anomalies are easily recognized.

In the arteria lusoria configuration, four vessels arise sequentially from the aortic arch: the right common carotid artery, the left common carotid artery, the left subclavian artery, and the aberrant right subclavian artery. The latter arises on the left side of the thorax as the last branch of the aortic arch, and has to cross upwards and to the right behind the oesophagus in the majority of cases. The right vertebral artery arises from the lusoria artery but it can also originate from the proximal segment of the right common carotid artery [2].

It is well established that the safety and adequacy of unilateral cerebral perfusion through the right axillary artery in patients with normal arch vessel origin depend on an intact circle of Willis [3]. In the arteria lusoria configuration, we agree with Urbanski and colleagues that performing right subclavian perfusion for cerebral protection is valueless [1]. A direct cannulation of the right carotid artery is, in our opinion, insufficient in patients with arteria lusoria, unless the right vertebral artery originates from the right carotid artery.

In the absence of aortic arch vessel anomalies, right subclavian cannulation ensures sufficient perfusion for both cerebral hemispheres, independent of the integrity of the circle of Willis, because two cerebral arteries (carotid and vertebral) are perfused through the right axillary or right subclavian artery. The vertebrobasilar system, which supplies blood to the posterior part of the circle of Willis, also contributes to the perfusion of the medulla via the anterior spinal artery, thus ensuring sufficient blood for spinal protection during circulatory arrest.

Recognizing the aberrant course of the right vertebral artery, especially in the setting of aortic arch anomalies, may be helpful in planning the best cerebral protection when performing arch surgery.

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References